

Bovine TB interferon- γ assay at slaughter: a novel strategy for targeted surveillance

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Screening for bovine tuberculosis (bTB) at points-of-concentration (POC) of cattle would aid in the global efforts to eradicate bTB. Three separate studies evaluated the application of the interferon-gamma (IFN- γ) assay for use at slaughter facilities, a POC of cattle. Study one tested blood obtained at commencement of exsanguination (COE) of cattle experimentally sensitized with inactivated *M. bovis* for retention of a positive result in the IFN- γ assay. Results indicated that most sensitized cattle would retain a positive IFN- γ assay result at COE, despite a decline in IFN- γ production. In study two, at the time of blood collection, and total lymphocyte counts were evaluated as potential factors affecting measurable IFN- γ production at COE. Results indicated that blood obtained from sensitized cattle at COE was more likely to remain positive than blood collected at successive time points post exsanguination; hence time of blood collection is crucial to obtaining valid bTB IFN- γ assay result at slaughter. Lymphocyte counts progressively declined following exsanguination, which might contribute to the reduction in IFN- γ production. To compensate for the reduction in IFN- γ production, a different set of positive cut-off values might be needed for blood collected at COE. Study three tested cattle under field conditions. The cattle originated from herds designated as one of three risk categories: known infected, potentially exposed, and non-exposed. Cattle with or without bTB-like gross lesions were identified as IFN- γ assay positive using blood collected at COE. One of those cattle was confirmed bTB positive by bacterial culture. All the IFN- γ assay positive cattle originated from either known infected or potentially exposed herds. Therefore, blood collected at COE could be used to identify bTB exposed herds or to monitor a bTB-free area, providing an additional tool for the control and eradication of bTB.